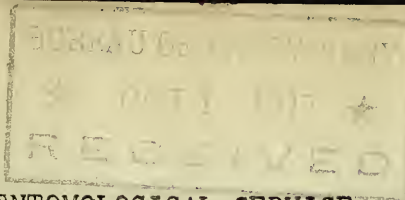


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EMERGENCY ENTOMOLOGICAL SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE.

Reporting cooperation between Federal, State, and Station

Entomologists and other Agencies.

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THE APPEARANCE OF THE PINK BOLL WORM IN TEXAS.

The startling information received last November that the pink boll worm (*Pectinophora gossypiella*) occurred in the Laguna District of Mexico is now followed by a report that this insect gained entrance to the United States before the rigid quarantine of the Federal Horticultural Board was put into action.

The reporting, September 12, of a single specimen of the pink boll worm in a field at Hearne, Texas, adjacent to one of the mills which had received a considerable quantity of seed from Mexico prior to the quarantine of November of last year has led to thorough-going clean-up operations in respect to all cotton fields adjacent to this mill, and similar clean-up operations will follow adjacent to all other mills in Texas which have received Mexican seed. Dr. W.D. Hunter, under authorization from the Federal Horticultural Board, went to Texas at once to give personal direction to this work. It is believed that these measures have been taken with sufficient promptness and thoroughness to prevent the establishment of this pest at any of these points. The clean-up at Hearne has been with the aid of some twenty-five entomologists assembled there from the forces of the Federal Horticultural Board, The Bureau of Entomology, and the inspection and entomological experts of the State of Texas. There have also been employed in the clean-up and destruction of cotton fields over 400 laborers. The thorough-going inspection at Hearne resulted in finding this pest in one other field also near the mill. All the fields in the vicinity of Hearne within possible range of infestation have been destroyed, root and branch, the cotton pulled and burned, scattered cotton picked and burned, and the bare land burned over with a burner such as is used in softening asphalt in repairing pavements. Thorough-going measures have been taken also to safeguard the harvested lint and seed. Similar measures, so far as may be necessary, will be taken at other mills whether any pink boll

THE HISTORY OF THE

REIGN OF

CHARLES THE FIRST

BY

JOHN BURNET

1679

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worms are found there or not as an extreme but necessary precaution under the circumstances. With these twenty-five entomologists every field in the neighborhood of these mills will be given a plant-to-plant examination. The owners of the cotton plantations involved and the boards of trade of the towns in question have generally evinced thorough-going public-spirited cooperation, the funds for the payment of destroyed cotton at Hearne having been raised by a public subscription by planters and others, the Board assuming merely the actual expense for labor involved. It seems probable that this outbreak at Hearne is the only one which will result from the movement last year of Mexican cotton seed to Texas mills, but the cotton grown in the vicinity of all the towns concerned will be kept under constant observation the balance of the year and none of the locally grown seed will be permitted to be used for planting next season. The crop of this year will be safeguarded, the lint shipped abroad, and the seed promptly ground up at the mills.

A special session of the Texas Legislature is considering a bill giving drastic powers under which a cotton-free zone can be created in cooperation with the Federal authorities in Texas along the Mexican border and giving full power to control the growth and movement of cotton in this zone and at any other point in Texas which may become invaded by the pink boll worm.

C. L. Marlatt.

A QUARANTINE ON SWEET POTATOES.

The State of Florida has issued a quarantine against sweet potatoes infested by Cylas formicarius, which occurs only in a few counties of Florida. This pest is gradually gaining ground. It is also known from south Louisiana and Texas as well as many other parts of the world.

W.D. Pierce has reported to the Federal Horticultural Board the presence of the sweet potato scarabee or weevil, Euscepes batatae, in Porto Rico, Barbados, St. Vincent, Antigua, St. Kitts, Nevis, Brazil, Hawaii, Guam, and New Zealand. This weevil is apparently as capable of distribution as the better known Cylas formicarius, and should be included in future quarantine measures.

The Florida quarantine act is as follows:

Public Notice Declaring Certain Areas to be Infested with the Sweet Potato Root Weevil:

Under the provisions of the Florida Plant Act of 1915, Chapter 6885 of the Laws of Florida, the State Plant Board, in session at Jacksonville, Florida, this 13th day of September, 1917, and in accordance with Section 12 of said Act, does declare and give public notice thereof that the Sweet Potato Root Weevil (Cylas formicarius Oliv.) is an insect pest the dissemination of which should be prevented, that sweet potato plants, vines, slips, cuttings, draws and tubers and morning glory (Ipomoea sp.) vines and roots are plants likely to become infested by said insect pest and that the following areas are areas within the State of Florida in which said insect pest is known to occur: The Counties of Baker, Brevard, St. Lucie,

Palm Beach, Broward, Dade and Monroe and Sanibel Island, Captiva Island and Buck Key in Lee County.

Rule 33. The movement or shipment of sweet potatoeslips, draws, vines, plants and cuttings and of morning glory tubers, roots, vines and parts thereof, from the areas designated in the Public Notices by the State Plant Board as areas in which the Sweet Potato Root Weevil (Cylas formicarius Oliv.) occurs or which are infested by said weevil, into or through all parts of the State of Florida other than those specified as infested areas, is hereby prohibited.

Rule 34. The movement or shipment of sweet potato tubers from the areas designated in the Public Notices of the State Plant Board as areas in which the Sweet Potato Root Weevil (Cylas formicarius Oliv.) occurs or which are infested by said weevil, into all parts of the State of Florida other than those specified as infested areas, unless first fumigated under the personal supervision of an Agent of the Plant Board and certified by him, is hereby prohibited: provided, that this rule shall not be construed as preventing the shipment of sweet potato tubers from infested sections of the State of Florida to points in other states when such tubers are securely sacked and shipped in tightly closed cars in carload shipments and provided, further, that this rule shall not be construed as preventing the shipment of canned sweet potatoes.

EXTENSION WORK.

The Office of Extension Work in Entomology is now organized and is supervising the initial steps in the Bureau's extension campaigns. Project agreements have been submitted to thirteen states and others are being prepared for the remaining states. In many cases these are being held awaiting a reply to our letter requesting the state entomological forces to submit a proposal relative to the work in their territory. Sixteen men have been appointed and several other appointments have been requested.

The Hessian fly campaign is now well under way in several states and truck crop work on Long Island and in Orange County, New York, is progressing successfully. Tropical fruit insect control work will soon be begun in Florida and deciduous fruit extension projects will be started in several states early in October.

The Bureau of Entomology's representative in charge of this work has visited, during the past week, North and South Carolina and Virginia and plans to visit the other state stations as soon as possible.

Extracts of a few of the replies received will give an idea of the nature of the response to this new movement.

J. A. Hyslop.

KANSAS

While Kansas has not been considered a fruit state, the development in orchard work within the last two or three years has become very marked and our extension horticulturist has been extremely busy as it has been

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necessary for him to handle the insect work as well as the regular horticultural work. His demonstration work has been particularly successful with the large fruit growers and his work has now reached the point where it is absolutely necessary to have additional help. For instance, along the Arkansas River between Larned and Arkansas City, there are more than 1,300,000 acres suitable for the growing of fruit. Much of this land is being developed rapidly and many young orchards will come into bearing in that section within the next five years. The Arkansas valley already produces about 1,500,000 bushels of apples a year. Most of the growers in the valley are wide awake to the necessities of spraying and good orchard management, but because of the intense heat and changeable seasons, the information sent from this institution as the proper time to spray for codling moth does not fit their conditions unless repeated trips are made to this section. We need badly an entomologist who knows the orchard business well enough to demonstrate to these men the need of proper handling of the trees and to keep them informed as to the exact dates of the appearance of the different broods of codling moth as well as other insects. They also need instruction along the lines of over-lapping of different breeds of the moth which often make it necessary to apply extra sprays. The skeletonizer also has been spreading and growing worse in the orchards in Kansas. Demonstrations to show how, when, and with what to spray for the control of this insect, are needed.

The Arkansas valley also has an ideal soil for the growing of all kinds of vegetables under irrigation and the trucking industry is developing rapidly. Many of the insects and diseases of the vegetable plants there are not understood and demonstrations in their control would be welcomed by the growers in that section who are anxious to cooperate with us and who have expressed their willingness to aid the work in any way possible.

Besides the work that could be done in the Arkansas valley, there is much need for work among the gardeners along what is known as the Sandy Ridge in southeast Kansas where there is now a call for the growing of fruits and vegetables for the markets afforded by the nearby mines, refineries, and smelters. Other fruit districts such as those of southeast Kansas and along the Republican River in north-central Kansas, and the sweet potato lands in the valleys of the Smoky Hill, Saline, and Solomon rivers, will be developed only by demonstrational work along the lines of insect and fungus disease control.

MARYLAND.

"We have in course of preparation a bulletin on Stored Product Enemies and have had an exhibit at several of the fairs and the man in charge of the exhibit is demonstrating the method of fumigating with carbon bisulphide. We expect to continue this work throughout the entire Fair circuit and are endeavoring to thereby drive home to the farmers, merchants and millers the necessity of preventing insect and rodent damage. We have included in the outline of our emergency project demonstrations the control of orchard pests which is in line with your suggestion.

We have also been endeavoring to stimulate beekeeping and the production of honey and to this end have had a better housekeeping exhibit

at all of the fairs. I am enclosing all of the work as submitted to the Council of Defense which will show you how well your suggestions fit in with that which we are undertaking at present. We have a considerable area of truck crops in the state and it might be well to make provisions for demonstrations in the control of truck crop pests in this state even though the sporadic nature of these infestations may make it unnecessary to do any actual work.

E.N.Cory.

MISSISSIPPI.

I can see a big demand for help in beekeeping matters, and in the control of insects of peaches, pecans, and citrus fruits. The Argentine Ant is a growing problem, and I expect the increasing acreage of wheat will bring us new entomological problems.

R.W. Harned.

NEW HAMPSHIRE.

This department will be very glad indeed to enter into a cooperative arrangement for demonstration work in insect control. I think it problematical as to the grasshopper situation here next year. There are some indications that we shall have excessive numbers in certain places, while in others we had only normal abundance this season. No doubt this would be true of any insect outbreak.

If you would propose a plan covering this or any other species that appears to offer feasible work, I shall be very glad indeed to take it up.

This last season we had outbreaks similar to those reported to you from other states, including the potato plant louse, the rose chafer, the stalk borer and others. Each of these named here was destructive. It is possible that one or more of them would offer desirable field for work, perhaps even more so than the grasshopper.

W. C. O'Kane.

NEW JERSEY.

We have decided that the best results in insect control could be obtained by placing demonstrators in fruit insect demonstrations, vegetable insect demonstrations and potato insect demonstrations in the northern, central and southern sections of New Jersey.

A man stationed in northern New Jersey would carry out, first, a demonstration of the control of the apple aphid, plum curculio and codling moth; second, a demonstration of the control of vegetable plant lice and onion thrips; third, a demonstration of the control of potato plant lice and beetles. A man stationed in central New Jersey could carry out, first, a demonstration of the control of plant lice, plum curculio and codling moth in apple orchards; second a demonstration of the control of psylla in pear orchards; third, a demonstration of the control of potato plant lice and beetles. A man stationed in the southern section of New Jersey could carry out; first, a demonstration of the control of rose bugs and

grape leaf hoppers on vineyards; second, a demonstration of the control of vegetable plant lice and onion thrips; third, a demonstration on the control of the strawberry weevil; fourth, and possibly that a certain amount of aid of our force could demonstrate the control of potato lice and beetles.

It would be our intention to advertise these demonstrations and to get the growers out in force to examine the processes and the results obtained. This we could do very readily through our system of County Farm Demonstrators. We feel, however, that a man undertaking work of this sort should quite fully familiarize himself with the agricultural teachings that are being disseminated throughout the state by this institution and that he should make his advice relative to such agricultural procedure as may be brought to his attention by our people conform to the teachings which we are trying to impress.

Thomas J. Headlee.

REPORTS ON INSECT CONDITIONS.

Cereal and Forage Crop Insect Investigations:

Emergence of Hessian fly adults in considerable numbers is reported by H. J. Hart as occurring at Falls City, Nebraska, September 18. Eggs were deposited the same day in great quantities on the volunteer wheat plants.

Mr. E. O. G. Kelly reports a similar condition obtaining at Wellington, Kansas, September 21 and states that the situation is not encouraging.

Mr. J. J. Davis reports under date of September 20 as follows: "Hessian fly adults made their appearance in Southern Indiana and Illinois, but in no great abundance as yet. Present indications are that there will be no Hessian fly injury in Indiana and Illinois north of the southern third of these States. Sowing experiments to determine time of sowing, the effect of fertilizer, the effect of soil treatment, etc., on the wheat in relation to the Hessian fly have been started in the following localities: Battle Creek, Michigan; Lafayette, Shelbyville, Vincennes, and Princeton, Indiana; Centralia, Nashville, and Grand Chain, Illinois; and in Tennessee immediately south of Guthrie, Kentucky.

The following is an extract from a letter received from Dr. Stephen A. Forbes in reply to a wheat grower who objected to the recommendation of the Department for plowing down the wheat stubble immediately after harvest because he was in the habit of sowing timothy and clover with the wheat:

"With respect to the recommendation of the U.S. Department of Agriculture that wheat stubble should be plowed as soon after harvest as practicable in order to destroy the fly left over from the preceding crop and your objection that this would mean a sacrifice of the clover and timothy sown with the wheat, I can only say that this method of raising forage crops will have to be abandoned if farmers expect to protect the wheat against the fly. In making wheat a nurse crop for clover and timothy you are at the same time making these forage plants a nurse crop for the Hessian fly. It is this fact, no doubt, which the Agricultural Department had in mind in making their postal card recommendation. Wheat must be raised as wheat only, and clover must be sown in oats or in whatever other way is most feasible if we are to do our utmost to supply the world with bread."

We cannot endorse too strongly these words of Doctor Forbes. The practice mentioned in this communication obtains throughout a large portion of the Eastern United States and as Doctor Forbes states it will have to be abandoned if we expect ever to get permanent control of the Hessian fly.

Mr. McConnell, who has been making a survey of the Hessian fly conditions in New York State, in company with Prof. C. R. Crosby, reports that little infestation was found; in fact, it seems to be negligible at the present time.

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

IN WHICH ARE CONTAINED THE MOST IMPORTANT
EVENTS OF HIS REIGN, AND THE
CAUSES AND CONSEQUENCES OF THE GREAT
REBELLION, AND THE DEATH OF THE KING.

BY JOHN BURNET, ESQ. OF LINCOLN'S INN.
IN TWO VOLUMES.

THE FIRST VOLUME.
LONDON, Printed by J. Sturges, at the
Sign of the Anchor, in St. Dunstons Church-yard,
near St. Dunstons Church, in the Parish of
St. Dunstons, in the County of Middlesex.
1704.

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1704.

Fall army worm:

This pest is reported by Mr. Kelly as appearing about September 1 at Wellington, Kansas, on the second crop of corn. He thinks it possible that injury to winter wheat may result from a later brood.

Mr. Philip Luginbill, writing from Columbia, South Carolina, reports as follows: "No reports of outbreaks of fall army worm have reached this office so far this summer, and it seems unlikely that outbreaks may occur. At no time have the worms been present in abundance; in fact, difficulty has been experienced in securing sufficient material for experimental work."

Migrant moths were observed at Columbia about July first, which is the usual time for their appearance in this latitude. The absence of outbreaks may be attributed to the dry summer and it seems likely that on account of the abnormally low temperature prevailing last winter the mortality line ran into a lower latitude than usual, especially in Florida. Reports received earlier in the season that the fall army worm was injuring vetch and other field crops were found to be erroneous, as the species was later identified as Heliothis armiger.

Cutworms:

Under date of August 30 Mr. Wildermuth, stationed at Tempe, Arizona, writes that cutworms of the genus Peridroma did considerable injury to alfalfa at Ash Fork, Arizona. Calosoma beetles were present in large numbers and did good service as predators. An outbreak of a cutworm supposed to be Feltia annexa was also reported by Mr. Wildermuth under date of September 19, as follows: "The first report regarding this insect came to us less than a week ago. We received reports subsequently bringing the alfalfa acreage destroyed by this pest up to about 150 acres, and this estimate will doubtless be increased by later reports. The cutworm is present in great numbers, about 60 to the square yard. It feeds on the alfalfa buds just as they are starting growth at the crown of the plant. Infested alfalfa fields which have been closely cut for hay, therefore, show absolutely no growth following the removal of the hay crop. The extent of the damage is most cases being from \$20 to \$25 per acre. Treatment with poisoned bran mash costing approximately one dollar per acre has been exceptionally successful, about 98 per cent of the larvae being killed. It is possible to tell three days after a field has been treated whether or not the treatment has been effective by observing the new growth of alfalfa. Arsenate of lead seemed in these experiments to be fully as effective as Paris Green. Additional experiments are being conducted looking toward the reduction of the cost of the material."

Mr. Wildermuth has recently submitted the following notes regarding Alydus pluto: "At Ash Fork, Arizona, this black hemipteron was present in great numbers, about two dozen being taken in a single sweep of an insect net. They were piercing the alfalfa seed pods, which contain seed in the milk stage, and sucking the juices therefrom. While the isolated patches of alfalfa in the vicinity of Ash Fork are not usually intended for the production of seed, yet if this bug should become distributed in seed growing regions its possibilities as a serious pest are immense. All seeds upon which the insects have fed are blighted and in some cases when practically

THE UNITED STATES OF AMERICA
DO hereby certify that the following is a true and correct copy of the original as the same appears on file in the Department of the Interior.

WITNESSETH my hand and the seal of the Department of the Interior at Washington, D.C., this 1st day of January, 1900.

Very truly yours,
J. M. McKim,
Acting Secretary of the Interior.

100-100000

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every seed in the pod has had the juice extracted from it the entire pod turns black and blights. At the same time the observations were made the insect was present only in the adult stage and it was not possible to find either eggs or nymphs. The adults were mating and it seems possible that the insect is breeding upon native plants growing in the immediate vicinity. This species should be kept under close surveillance in the future."

Meromyza americana:

This well-known insect seems to be unusually abundant during the present summer and has been observed in great numbers by Messrs. Kelly and Wildermuth.

W. R. Walton.

Southern Field Crop Insect Investigations:

Boll weevil.

Reports received from all of the field men in the cotton belt as well as from state entomologists indicate that this has been one of the lightest boll weevil years since the pest entered the country. There are very few sections in which the damage has been comparatively heavy, these being the Sea Island sections of Florida and southern Georgia and the northern portions of the Mississippi delta. Extracts from some of these reports are included. The cold weather of the early part of the year caused a falling back of the weevil around the entire limits of its dispersion of last year. This falling back, in many cases, extended far into old infested territory and resulted in a great reduction of weevils throughout the South. About August first there was a movement on the part of the weevils to regain some of this territory. It is expected that there will be found points which have remained infested throughout the year on the limits of last year's dispersion. These places will be foci for dispersion this fall. Otherwise it is hardly to be expected that the weevil will extend much beyond last year's limit.

In view of the fact that the species is so greatly reduced in numbers it appears advisable to emphasize as strongly as possible in all parts of the cotton belt the necessity of destroying all cotton stalks standing in the fall by frost time or shortly thereafter, and to clean up all rubbish and weeds around the fields. A concerted campaign throughout the South to accomplish these results probably would result in an even greater lessening of damage next year.

Mr. G. D. Smith reports from the Sea Island section that Jefferson and Madison Counties in Florida, and Brooks and Lowndes Counties in Georgia, have been seriously affected by the weevil. He does not expect more than 25 per cent of the normal crop in Madison, Jefferson, and parts of Hamilton and Suwanee Counties in Florida.

Mr. J. D. Smith reports that the weevil damage to Sea Island cotton in the vicinity of Valdosta, Georgia, is probably 60 per cent. He reports the whole of McIntosh County infested.

THE SECRETARY OF THE
TREASURY
WASHINGTON, D. C.

TO THE HONORABLE
COMMISSIONER OF THE
INTERNAL REVENUE
WASHINGTON, D. C.

DEAR SIR:

I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the matter of the proposed amendment to the Internal Revenue Code, and in reply to inform you that the same has been forwarded to the proper authorities for their consideration. It is the policy of the Department to consider all such proposals with the utmost care and to give them the most thorough examination possible. The Department is also desirous of receiving from you any further information or suggestions that you may have in relation to the matter.

I am, Sir, very respectfully,
Yours truly,
J. M. [Signature]

Very truly,
J. M. [Signature]

Very truly,
J. M. [Signature]

Mr. B. R. Coad reports on conditions in Louisiana and Mississippi as follows: "In the immediate vicinity of Tallulah, Louisiana, that is, Madison, East Carroll and Tensas Parishes, the crops are very unusually good, the weevil damage amounting to practically nothing. In fact, there was no general damage as far as square puncturing was concerned, and the only injury was the late season attack on the bolls when the plants stopped squaring. Cotton plants are remarkably small this year and matured very early and are making a very convenient crop to pick. This condition as regards weevil damage seems to prevail rather generally throughout that part of the delta which did not receive the June rains. In fact, these rains seem to have been the determining factor in the weevil damage this year as is well exemplified by the fact that where the rains were sufficient to produce a good, early corn crop the weevil damage was rather severe, while in the sections where the early corn crop was a failure, comparatively speaking, the weevil damage amounted to little or nothing. I have had reports from a number of points around Delhi, Monroe and over in the Red River Valley around Shreveport, all indicating that the weevil damage was much the same as here. Reports from a number of points throughout southern Louisiana are to the same effect. Reports from Adams, Wilkerson, and neighboring counties in Mississippi indicate a light damage. In fact, generally speaking, the crops in Mississippi appear quite good with the exception of an area in the extreme northeastern and north-central part of the State around Tippah County. Here the weevil damage has been reported to be quite severe, although good crops are reported from Lee County. In the river district of Mississippi around Bolivar, Coahoma and Tunica Counties the weevil damage has been much more severe than in our neighborhood, apparently due to the June rains. The crops are quite fair, however. On the Arkansas side of the river much the same conditions seem to have prevailed, though the crops are not quite as good. As for the dispersion of the weevil, I have no information except that reports of weevils from Shelby County, and even north of there in Tennessee throughout the season, would not indicate any loss of ground."

Mr. J. D. Mitchell, reporting from Victoria, Texas, says that the extreme dry weather during the summer was so destructive to the immature stages of the weevil that they were never able to increase sufficiently to overflow the original fields infested nor to destroy more than one-third of the squares. The bulk of the crop, which was a month or six weeks late, was not infested. Owing to showers between August 29 and September 8 much of the cotton started a new growth. Many of the fields will make more cotton this fall than they made in the summer. This is the first year since the advent of the boll weevil that it has not had the cotton crop well in hand by September 1.

Cotton leaf worm and other pests of cotton:

The infestation of Alabama argillacea reported from Georgia was apparently checked by parasites. A slight infestation in Florida is reported by Mr. Newell. Mr. Mitchell reports that a similar infestation appeared in Victoria County, Texas, but was controlled by parasites and birds. Mr. Mitchell also reports that Diacrisia virginica is very numerous on cotton in Victoria County, and is assuming a threatening aspect.

Mr. E. A. McGregor sends the following report from the Imperial Valley, California: "Although no cotton pests of a greatly threatening nature have yet appeared in the California cotton regions, there are a few which are exacting a measurable toll from the planters of this section. Of the species attacking the squares and fruit the most serious are the tarnished-bug (Lygus pratensis), the bollworm (Heliothis obsoleta), and an unidentified lepidopterous larva. The foliage suffers chiefly from the thoroughly established cotton leaf-perforator (Bucculatrix thurberiella).

"Field studies indicate an infestation of about 10 per cent in the case of Lygus pratensis. This includes all forms showing the least trace of the attack of the tarnished-bug, many of which do not shed. The bollworm occurrence through the summer has averaged about 3.5 per cent infestation which is considerably greater than the average for the entire South as computed by the authorities. This is peculiar in view of the fact that almost no trace of the boll-worm was seen during 1916. Although Bucculatrix works chiefly on the foliage, it was also found to be attacking about 8 per cent of all squares and bolls examined to date. It is a noteworthy fact that Lygus occurs more heavily upon Egyptian cotton than on either the short staple or Durango varieties."

W. D. Pierce.

Vegetable and Truck Crop Insect Investigations:

Insects injurious to potato and related crops. The Colorado potato beetle (Leptinotarsa decemlineata Say) has not been reported as doing especial damage during the year except locally. It destroyed small plantings in the District of Columbia and vicinity early in the season; later it did not appear in sufficient numbers to do any damage. In northern Illinois, where potato growing has received quite an impetus owing to war conditions, this insect was one of the important species, the principal loss being borne by the amateur growers. The injury was complicated by the presence of plant-lice or aphides, slugs, and diseases.

There has been considerably less injury reported by the spinach aphid (Myzus persicae Sulz.) than in earlier months. It has been locally abundant although its appearance has been rather too late to be of any great interest. It has been reported from northern Colorado as injuring the sugar beet. In Massachusetts it is reported as destructive to turnips which are described as covered with "green lice", the leaves turning red and shriveling. Whole fields were lost in the vicinity. Similar injury to rutabagas was reported in Wisconsin and at Eadmore, Michigan, to potatoes. Much injury by this species was reported to the tomato crop in Marshall County, West Virginia.

The potato aphid (Macrosiphum solanifolii Ashm.) was reported injurious in northern Illinois. It is now present in the vicinity of the District of Columbia, and in nearby points in Maryland and Virginia in great abundance both on potato and tomato.

The potato flea-beetle (Epitrix cucumeris Harr.) has practically disappeared in the District of Columbia, but has been reported as injurious in the vicinity of Erie, Pennsylvania.

The potato tortoise beetle (Deloyala clavata Fab.) was found attacking potatoes in Tidewater Virginia.

The pepper weevil (Anthonomus eugenii Boh.) was reported injurious to green peppers at San Luis Potosi, Mexico, where it is known as "barrenillo" and was stated to be a very serious menace to the pepper crops, in some instances causing the loss of the entire crop.

The tomato hornworms (Phlegethontius spp.) were injurious to tomatoes grown for canning in the vicinity of Oxnard, California. These species were extremely rare in the neighborhood of the District of Columbia; indeed the whole season has been marked by a rarity of this species which has been usually reported in great numbers on tomatoes.

The tomato fruit-worm (Heliothis obsoleta Fab.) was seriously injuring tomatoes in the same region. It has not been as important a pest during the year as in previous years although reports of injury received during the month to sweet corn in New Mexico and in the vicinity of Sacramento, California, were noted. Sweet corn also was injured on Long Island and at Pittston, Pennsylvania. Lima beans were badly injured in the vicinity of the District of Columbia.

The three lined potato beetle (Lema trilineata Oliv.) has been present in the District of Columbia up to September 26, and egg masses are still to be found, but no larvae.

The sweet-potato weevil. Much correspondence has been conducted with official entomologists of the Gulf region and states which border on the Gulf region in regard to the occurrence of the sweet-potato weevil (Cylas formicarius Fab.) in that region. Prof. H. A. Morgan writes that this species occurred in Buras, Louisiana, in 1894. The opinion seems to be general that the insect occurs wherever sweet potatoes are grown in Plaquemine Parish, Louisiana. We have received word of its occurrence in a large number of new localities which will be mapped out as soon as our list is completed. The correspondence continues. We wish to know where this species is permanently located and where it does not occur with the view of taking steps towards its possible eradication. Mr. R. T. Cotton has written in the Fifth Report of the Board of Commissioners of Agriculture, Porto Rico, for 1915-1916, page 98, as follows: "It was formerly thought that the beetle could not fly but the writer has captured them while in flight fully half a mile from the potato field."

The work which has been conducted on this species in a preliminary way by the Bureau of Entomology will be greatly facilitated if correspondents will observe whether or not the insect flies where it has become established in the Gulf region.

Insects injurious to cabbage and related plants. Many reports have been received of injury to cabbage by the common cabbage worm (Pontia rapae L.) especially late in the season. The species has been normally injurious throughout the season. All stages are to be found in the District of Columbia and nearby points during the last week of September.

THE UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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The cross-striped cabbage worm (Evergestis rimosalis Guen) was quite injurious in Tidewater Virginia enabling experiments with remedies. It is working on nasturtiums in California.

The cabbage looper (Autographa brassicae Riley) during the month of September was about as abundant as the common cabbage worm in Virginia and Maryland. In northern Indiana it was found to be very abundant.

The true cabbage aphid (Aphis brassicae L.) was injurious to cabbage in different parts of Washington State and in California. In many other localities this species seems to have been displaced on the cole crops by the spinach aphid.

The cabbage root-maggot (Pegomya brassicae Bouché.) was reported from Washington State as injurious to cabbage, kohlrabi, radish, turnips, cauliflower, and Brussels sprouts, which were also injured at Baton Rouge, Louisiana, by the imported cabbage webworm (Hellula undalis Fab.).

At the Wichita, Kansas, station, the southern cabbage worm (Pontia protodice L.) was unusually abundant on radish and turnips in company with the common cabbage worm.

Plant-lice or aphides have been injurious in Guy, Hineston, and Mansfield, Louisiana, the species being without doubt the false cabbage aphid (Aphis pseudo-brassicae Davis). The injury was chiefly to turnips, mustard and radishes.

Cucumber and related plants. The striped cucumber beetle (Diabrotica vittata Fab.) has practically disappeared throughout the North owing to the repeated freezes, but frost in the vicinity of the District of Columbia, Maryland and Virginia, has not driven this species away. They have flown to other plants than cucurbits.

The twelve-striped cucumber beetle (Diabrotica 12-punctata Oliv.) is continuously active long after most other insects have gone into hibernation. It was abundant on blossoms of squash and other plants at Madison, Wisconsin, where 50 were counted in one blossom at one time.

The Western corn root-worm (Diabrotica longicornis Say.) has been reported by Mr. Neale F. Howard as occurring more abundantly in squash blossoms at Madison, Wisconsin, than previously noticed. As many as a dozen could be taken from one blossom.

The horned squash bug (Anasa armigera Say.) has been reared by Mr. Howard in Madison, Wisconsin, from nymphs to the adult proving that in that region it is able to reproduce itself and may be more or less permanently located there. This is the most northern record of this insect as far as we know, but it is yet of economic importance in that section.

The squash ladybird (Epilachna borealis Muls.) has been very destructive in Maryland and Virginia and in the latter State has been the subject of considerable study.

The Commission on the Status of Women, established in 1946, was the first of its kind. It was created by the Economic and Social Council of the United Nations to promote gender equality and the status of women in society.

The Commission's mandate was to study, investigate, and make recommendations on all issues relating to the status of women. It was the first international body to focus specifically on women's rights and issues.

The Commission's work was carried out through a series of sessions, each held in a different country. These sessions were held in 1946, 1949, 1952, 1955, 1958, 1961, 1964, 1967, 1970, 1973, 1976, 1979, 1982, 1985, 1988, 1991, 1994, 1997, 2000, 2003, 2006, 2009, 2012, 2015, 2018, and 2021.

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The striped beet caterpillar (Scotogramma (Mamestra) trifolii Rott) according to Mr. Asa C. Maxwell, has done serious damage to sugar beets in the vicinity of Longmont, Colorado. These caterpillars are most plentiful on land adjoining dry land and appeared to migrate from Russian thistle to the beets. In one instance they migrated from a weedy cornfield where Russian thistle was heavily infested.

The tarnished plant-bug (Lygus pratensis L.) worked on the heart leaves of beets in that vicinity causing the leaves to wilt and as a result of their work the buds in the axils of the leaves began to develop and the beet crown took on a very bushy appearance.

The beet leafhopper (Eutettix tenella Baker) the cause of curly-top, was located in some new localities in California. In one beet field 100 per cent of the beets were suffering from this trouble.

Unclassified insects. The semi-tropical army worm (Prodenia (Xylomiges) eridania) was reported injurious to sweet potatoes, beans, peas, and velvet beans, at Lumberton, Mississippi, where Prof. R. W. Harned noticed several outbreaks practically all over twenty acres of sweet potatoes. There are probably many other outbreaks which were not reported to the Bureau of Entomology. A related species (Prodenia ornithogalli Guen.) was observed on tomatoes in the District of Columbia and vicinity on several occasions, also at Wichita, Kansas.

The lesser corn stalk-borer (Elasmopalpus lignosellus Zel.) was reported in August as injuring young beans in Louisiana and has also made its appearance as a pest on beans in Kansas.

The celery leaf-tyer (Phlyctaenia ferrugalis Hubn.) was plentiful on sugar beets near newly planted celery fields at Smeltzer, California.

The cutworm moth (Feltia subgothica) made its appearance in great numbers in the vicinity of Plymouth, Indiana, and is breeding to date in our rearing jars from cutworms collected in Maryland and the District of Columbia.

The red spider (Tetranychus bimaculatus Harv.) was reported injurious in many localities. It is shown by correspondence and by observation of our agents that this insect infests particularly beans, strawberries, and tomato foliage late in the season. The Jimson weed is a host of this species which should be systematically destroyed because of its harboring this as well as other insects injurious to the potato, tomato, eggplant, and the like.

The bean leaf-beetle (Cerotoma trifurcata Forst.) has been the cause of much damage to the fall crop of beans in Plaquemine Parish, La.

The onion maggot (Pegomya cepetorum Meade.) has been reported as emerging from onions in numbers September 8, in the vicinity of Hood River, Oregon. Mr. F. R. Cole, who made this observation, states that there is an outbreak of the Colorado potato beetle at Hermiston and Umatilla in the Umatilla Region, where the insect seems to be beyond control. The beetles feed on wild solonaceous plants in the desert.

The first of these is the fact that the
 system is not a simple one, but a complex one.
 It is a system of many parts, each of which
 has its own function, and all of which are
 interrelated in such a way that the whole
 system is able to perform a task which no
 single part could perform alone.

The second of these is the fact that the
 system is not a static one, but a dynamic one.
 It is a system which is constantly changing,
 and which is able to adapt itself to new
 conditions as they arise.

The third of these is the fact that the
 system is not a closed one, but an open one.
 It is a system which is able to exchange
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The strawberry root weevil (Otiorhynchus ovatus) has been so abundant in the vicinity of Portland, Oregon, that some growers have actually given up growing the berry. Mr. Cole also reports that arsenate of lead sprayed for a leaf-roller on the strawberry in Oregon has given good results.

F. H. Chittenden.

Deciduous Fruit Insect Investigations:

Letters received from the various field stations on orchard insect conditions during September contain much interesting information, extracts from which are given below:

Mr. H. K. Plank, in charge of the Grand Junction, Colorado, laboratory, reports results of a recent trip, in company with Mr. Geo. M. List, Chief Deputy State Entomologist, through Delta County, Colorado, with especial reference to codling moth conditions. Apple growers at Cedaredge (elevation 6,000 feet) have experienced but little trouble in controlling the codling moth, the calyx spray being sufficient to produce as high as 99 per cent of fruit free from worms. At Paonia (elevation 5,694 feet) the insect seems harder to control, and three or four sprays supplemented by banding are required in many instances to hold it in check. In two large orchards near Cedaredge, the pear leaf mite was found quite abundant on Rome Beauty and Jonathan apples, and was thought to be responsible for a reduction in crop of about one-third. Other sections in the same locality were infested with less damage however.

From French Creek, West Virginia, Mr. F. E. Brooks reports that adult chestnut weevils (Balaninus proboscideus and B. algoquinus) are present in large numbers on unopened chestnut burs, indicating a heavy infestation of the nuts this fall. Injury to young fruit trees by flatheaded borers, Chrysobothris femorata, has been less noticeable this season than usual, while the roundheaded borer and peach borer are doing about their normal amount of injury. Unsprayed grapevines produced something less than half a crop, the shortage being due in large measure to the attack of the grape curculio, the beetles of which species are now going into hibernation in about normal numbers.

From the Sandusky, Ohio, laboratory, Mr. H. G. Ingerson reports that the grape berry moth and grape root worm are well under control, and that injury from the grape leafhopper this year has not been serious. The codling moth was not well controlled, but on account of a light fruit crop the wintering brood will not be unusually large. In the peach belt the plum curculio was responsible for considerable injury on account of the light fruit crop.

Mr. F. L. Simanton at Benton Harbor, Michigan, states that Michigan orchardists in that region have had better results the present season than usual in the control of the codling moth. One orchardist used about a ton of homemade arsenate of lime in comparison with arsenate of lead and reports equally good results from the arsenate of lime as with arsenate of lead. He plans to use arsenate of calcium another year, effecting a saving thereby. Owing to peculiar weather conditions in early spring the pear

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Psylla in the Benton Harbor region has ceased to be a menace in pear orchards. It is reported that walnut trees are about 15 per cent defoliated by the walnut Datana.

From the important apple growing district around Winchester, Virginia, Mr. B. R. Leach reports that spraying operations by local orchardists were uniformly successful, and that the crop while small, is very free from codling moth. Datana ministra has stripped the foliage of apple trees to a considerable extent in young unsprayed orchards. It is reported that the rosy aphid was very destructive in the fruit region tributary to Gettysburg and Biglersville, Pennsylvania.

Mr. E. B. Blakeslee, Springfield, West Virginia, reports an unusual condition as regards the peach borer. Owing to lateness of the season the period of flight of the moths has been much delayed. At this date (September 21) the insects are on the wing in abundance in orchards and oviposition is in progress. From this fact it is believed that there will be an unusual number of late-hatched larvae, which suggests the advisability of delaying the fall worming as late as practicable, since the small size of the larvae will result in many of them being overlooked. In cases where orchards are wormed but once annually preference should be given to the spring worming. Mr. Blakeslee also reports that dusting peaches in the mountain orchards tributary to his station has received a decided impetus from the good results obtained the present year. Growers are not, however, so firmly convinced of the efficacy of the dust spray on apples, though good results are reported in some instances.

During their reconnaissance trip in the apple growing regions of the Ozarks and in Kansas, Messrs. Dwight Isely and H. G. Ingerson had opportunity to determine the status in that region of some of the important orchard pests. The codling moth naturally was found to be the greatest source of injury. A careful investigation of 18 orchards belonging to the largest and most progressive growers of the regions visited indicated an average loss from the codling moth of about 30 per cent of the crop. This high percentage of injury is attributed to failure of timely application of sprays, especially during a season of unusual temperature conditions. Important injury was found to result from two or three species of apple leafhoppers, their injury interfering with the proper coloring of the fruit, and in a few instances causing early dropping of same. Numerous other species were observed, especially Onix geminatella and the apple leaf skeletonizer, the yellow-necker and redhumped caterpillars, and the San Jose scale.

Mr. E. H. Siegler, working in cooperation with Dr. W. E. Britton's office, at the Wallingford, Connecticut, laboratory reports heavy loss to the fruit crop of Connecticut from the codling moth, especially to small orchards, where ineffective spraying has been done. Apple aphids have been especially abundant, damaging fruit both in commercial and home orchards. The apple maggot is prevalent and the fruit is frequently harvested before maturity in order to avoid complete loss. Apple-foliage caterpillars have been much in evidence, as the yellow-necked and red-humped caterpillars, and fall webworm.

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From Florida, Mr. John B. Gill writes that the pecan twig girdler has been emerging for the past four weeks and is doing important damage in pecan orchards in that general region. The larvae of the pecan leaf case bearer (Acrobasis nebullella) are just now migrating from the foliage to the buds, where they are constructing hibernacula for the winter. Their appearance in numbers another spring is anticipated. Less damage than usual to the pecan crop in the Monticello section has resulted from attack by the pecan nut case bearer (Acrobasis hebesella). The fall webworm and walnut caterpillar have been rather serious on pecan in the southern parts of Alabama, Mississippi and Louisiana.

A. L. Quaintance.

Tropical and Subtropical Fruit Insect Investigations:

Mr. Yother reports that from a considerable examination of citrus orchards in the orange region 98 per cent of the unsprayed fruit will be designated as black or blue russet. This condition is brought about by the heavy infestation by the rust mite in late June and July. Sprayed fruit is 25 per cent larger than this unsprayed russet fruit and is bright or golden in color.

The white fly and scale are just as abundant as if none had been killed by the frost, and in the case of the purple scale much damage will result unless suitable spraying is undertaken. A good deal of scale fungi is in evidence but very little fungi attacking white fly.

Mr. Woglum reports no change from August conditions.

C. L. Marlatt.

Stored Product Insects.

Requests for information regarding the treatment of beans, peas, and cowpeas, to prevent weevil attack are increasing in number.

Numerous reports of injury to stored corn and wheat at this date indicate that the more common grain weevils are going to be unusually prevalent in stored grains during the coming winter months. Particular efforts are being exerted to standardize fumigants for these pests and the methods of application on a large scale will be fully investigated.

This office received on September 28 approximately twenty bushels of 1915 wheat that was 85 per cent ruined by the common rice weevil, Calandra oryza L. The wheat was being held at the Arlington Experimental Farms for seed, and upon investigation proved to be practically destroyed by the rice weevil for any further use for seed or food intended for human consumption.

A. B. Duckett.

Forest Insect Investigations:

Our work on the white ants or termites of North America have shown that they are of great economic importance, causing, as they do, great damage to telephone and telegraph poles, mine props, construction timbers, and the foundations and contents of buildings, etc.

Requests from many large manufacturers and utilizers of wood products are also received each year for information as to how to treat wood or wood products for the South and Central American trades with chemical preservatives to prevent attack by white ants.

Many firms are anxious to secure a market for their commercial products in tropical and south temperate countries but, owing to the damage by white ants to many kinds of North American woods, it is difficult to establish a trade.

In this connection, the Branch of Forest Entomology is planning to construct a termitarium for breeding termites to study their habits and seasonal histories, and for experiments in treating wood to prevent their attack. The base of this structure is to be of concrete and the roofing of glass similar to a greenhouse. In general, the termitarium will be similar to the fungous pits used in studying the action of wood-destroying fungi. By means of a separate heating plant the interior will be maintained at a fairly even temperature and the insects will thus be enabled to continue their activities throughout the year, and enable us to expose treated wood to their attack for double the period possible out-of-doors.

A. D. Hopkins.

Bee Culture:

In a former circular a report was made regarding the mimeograph letters sent to beekeepers to urge an increase in honey production. The mailing of these letters was completed for the season about September 15, the final campaign being on better wintering methods. From April 11 to September 15, a total of 340,500 letters were issued, these being sent to individual beekeepers in all but three states, as well as to all county agents and to the honey crop reporters of the Bureau of Crop Estimates. Since some circulars were of two or three pages, the total number of impressions was over 433,000.

The response to this campaign was encouraging and the interest of beekeepers in the campaign is indicated by the receipt of over 16,500 pieces of first-class mail from April 1 to October 1. This is at the rate of nine times any previous month in the history of the office. Fortunately many of these were requests for publications requiring no letter in reply.

E. F. Phillips.

GENERAL REPORTS ON CONDITIONS IN STATES.

ALABAMA.

The boll weevil has done less damage than usual in Alabama this year. I attribute this primarily to the very severe winter which reduced their numbers to a large extent and also to the fact that in some sections of the state a period of several weeks of very dry weather occurred during the early part of the fruiting season of cotton.

For these reasons primarily the weevils have done less injury in the southern part of the state than during the past several years. In the East-central section damage to many fields has been severe, only a bottom crop having been obtained. In the northern part of the state the crop is very good as I am informed.

As to the occurrence of the weevil, we have reports that indicate that it has maintained its hold upon territory nearly up to the line reached by them in the fall of 1916. I anticipate some advance beyond the 1916 line this season. We shall expect to investigate this during the latter part of October or earlier if weather conditions promise frost before that time.

With reference to Alabama argillacea, I would say that I have seen no specimen of the insect from this state this season nor have I heard of anything that seemed to me reliable information regarding its occurrence here.

W. E. Hinds.

September, 24, 1917.

ARKANSAS..

The little wire worm, Horistonotus uhleri, has been giving us a great deal of trouble for many years and a part of our state is in sore need of help on account of the ravages of this insect.

Geo. G. Becker.

September, 15, 1917.

FLORIDA.

The damage by the boll weevil in western Florida, that is in that portion of the state from Monticello to Pensacola, has been heavy this year. From Lake City to Monticello the damage may be considered as not as heavy as was expected by the farmers. Going to the east and south from Lake City, the damage shades off as most of this territory was not invaded by the weevil until last year. The damage in the western portion of the counties of Bradford and Alachua is sufficient to cause considerable comment by the farmers, but the damage in the central and eastern portions of these counties is hardly more than appreciable. In this

STATE OF NEW YORK

IN SENATE

REPORT OF THE COMMISSIONER OF THE LAND OFFICE
IN RESPONSE TO A RESOLUTION PASSED BY THE SENATE
MAY 18, 1890
ALBANY: J.B. LIPPINCOTT & CO. PRINTERS.
1891.

ALBANY, N.Y.,
JANUARY 1, 1891.

TO THE SENATE

THE COMMISSIONER OF THE LAND OFFICE,
IN RESPONSE TO A RESOLUTION PASSED BY THE SENATE
MAY 18, 1890.

ALBANY, N.Y.,
JANUARY 1, 1891.

TO THE SENATE

THE COMMISSIONER OF THE LAND OFFICE,
IN RESPONSE TO A RESOLUTION PASSED BY THE SENATE
MAY 18, 1890.

particular section an undue amount of damage is ascribed to the boll weevil, most of the damage being in reality due to the boll worm, which is this year exceptionally abundant in the central portion of the state, namely in the counties of Alachua, Putnam, Hernando, Lake and Pasco.

Some dispersion this season has already taken place without doubt. No weevils were found nearer than about eight miles from Gainesville this year, but infested squares can now be found quite easily in the immediate neighborhood of Gainesville. On the 15th inst. I had occasion to be in the northwestern portion of Putnam County, and found both adults and larvae up to five days of age in the squares, with numerous feeding punctures. This is the first official record of infestation in Putnam County, that county very evidently not having been reached in last year's dispersion.

I would not venture any prediction now as to the extent of the dispersion which has already taken place this summer. We will start an inspector on this work the present week and will continue it until the limits of the dispersion for the summer are determined.

One of the most significant things in connection with the boll weevil situation in Florida is the marked tendency in all the long staple areas invaded, for the farmer to substitute short staple cotton for long staple. In the western part of the state this change has taken place to a very great extent and is now taking place to some extent in the north central portion of the state which was invaded for the first time last year. It seems extremely probable that this substitution of short staple for long staple will assume large proportions because of the great difficulty of securing a crop of long staple cotton in the presence of the weevil. It would seem not improbable that this substitution will, within a year or two, amount to fifty per cent of the acreage in Florida which has heretofore been devoted to long staple. At the same time, the high price of cotton has brought about an increased acreage in counties further south which formerly did not produce it. There has been a considerable planting of long staple in Pinellas, Pasco, Hillsboro, Polk and Lake counties, and indications are that plantings still further south will be made next year. However, it is very doubtful whether increased plantings to the southward ahead of the weevil will reach sufficient proportions to offset the acreage in the north, central and western portion of the state which has gone out of long staple and into short staple.

Very little complaint has been received regarding Adlabama argillacea. A few of the caterpillars are to be found around Gainesville at the present time but not in sufficient numbers to defoliate the cotton plants. We have been unable to learn either through demonstration agents or through our own inspectors of any marked outbreak of Alabama argillacea anywhere in the state this year.

Wilmon Newell.

September 24, 1917.

The sweet potato caterpillar, Prodenia sp., has been doing considerable damage in several parts of the state, this damage being confined mostly to the sweet potato crop.

Taking the state as a whole, the white fly is worse this year than it has been in a good many years, due to the fact that the freeze of last winter defoliated the trees and largely cleaned them of entomogenous fungi.

The fall army worm has been reported from a few localities in Florida.

The velvet bean caterpillar, Anticarsia gemmatilis, is very abundant, doing considerable damage, but on the whole probably less abundant than it has been at this time during the past two years. We have added a new host plant to it, Carica erosa, a legume raised for chicken feed.

The boll worm has been unusually bad on cotton this year and is doing considerable damage to cowpeas working on the pods as it does on the pods of beans.

Blister beetles, several species, were common this month damaging peppers, egg-plants, etc.

The lesser corn stalk borer, Elasmopalpus lignosellus, and the bean jassid, Empoasca mali, are beginning to be very destructive to the fall crop of beans.

The fall webworm, Hyphantria cunea, has been rather more abundant this fall than usual attacking the pecan, sweet gum, and persimmon.

The larvae of the orange dog, Papilio cresphontes, are becoming somewhat more abundant, but on the whole have been much scarcer than usual this year.

The pumpkin bug, Nezara viridula, is becoming rather abundant on cowpeas, beans, okra, etc.

J.R.Watson,

September 26, 1917.

GEORGIA.

It is impossible at this time to tell what damage the boll weevil is going to do in this state. The damage in sections where the weevil occurred in 1915 in many instances has been fully 50 per cent, but where farmers have made a good fight they have made a normal crop of cotton. The cotton crop in middle and north Georgia is fully three to four weeks late. The weevil has advanced very slowly, but no doubt will do considerable damage in middle Georgia.

In only one instance have we found the weevil up to last year's line, and we are unable to account for its appearance at that point because there is a vast area in the east central part of the state where the weevil was supposed to recede and has not yet shown up.

I was in Chatham county the early part of the present week and made careful investigations for boll weevil and leaf worm but failed to locate either. I visited the places mentioned in your letter and took an automobile trip from Savannah to Darien, and I was unable to find any evidence of the presence of the leaf worm.

E. L. Worsham,

September 21, 1917.

MASSACHUSETTS.

I find very little change in insect conditions during this past week. Perhaps the most interesting items are the many complaints of injury to oak and chestnut trees by mite work. These trees are for the most part ones of special value to the owners as shade trees in private grounds.

We find the usual number of inquiries on Datanas and red humped caterpillars which are nearly finished feeding for the present season, judging from our observations. There are also increasing numbers of inquiries coming in for control of insect pests of stored products, such as bean weevils etc.

A.I. Bourne.
September 8, 1917.

MISSOURI.

The Hessian fly is not a serious problem in Missouri this year, but we are continuing our propaganda work in order to keep the attention of our wheat growers fixed upon the importance of the various preventive measures essential to the control of this pest which has done so much damage in Missouri during recent years.

We have a chinch bug problem here this year which needs attention, and as soon as the Hessian fly campaign closes we can go right ahead with work on the chinch bug.

A.J. Meyer.
September 11, 1917.

NEW HAMPSHIRE.

The rose bug has done a lot of damage in New Hampshire this season. We have received a great many letters calling attention to the work of this pest. They have been reported as destroying all kinds of foliage; they may not be serious another year but they have certainly done a lot of damage this season. This is the first season that we have noticed serious damage being done by the potato louse. In several parts of the state the damage has been considerable.

J. C. Kendall,
September 7, 1917.

NEW YORK.

Codling moth: The crop in the western part of the state is very likely rather seriously injured by this well known pest because a small crop invariably means a higher percentage of wormy apples. There is no way of avoiding this except by systematic and thorough spraying year after year, including seasons when there is practically no crop. Reports of the

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amount of injury in different sections are desired. This will become more apparent with the picking of the fruit.

Fall web worm. Common in nests on cultivated and wild trees. This pest has practically completed its feeding and the little that may occur after this is of small importance.

Midsummer leaf feeders. Warnings concerning these insects were issued July 26, the red humped and the yellow-necked apple tree worms being mentioned in particular. The former has been unusually abundant and has occasioned considerable apprehension in many localities, especially because of its work on small trees, though in many instances the damage has not been serious.

Red spider. Somewhat injurious to black currant and red raspberry, though not nearly so much so as last year.

Corn ear worm. Seriously damaging corn in vacant lots and the gardens of Brooklyn, although not serious, it is becoming more numerous apparently 3 to 4 per cent of the ears being infested. This insect is usually more injurious in the southern part of the state, especially in the vicinity of New York City.

Grain insects. Injury to wheat by the wheat midge has been reported, especially from the western part of the state. This pest has also caused some damage to rye. The conditions under which the midge is injurious to both grains are so peculiar that a repetition of any such damage is very improbable the coming season, and the possibility of such occurring should not lead to a reduction in the area planned for either wheat or rye.

The Hessian fly is another of the occasional pests and in the circular issued August 30, sowing September 20th or later was urged as an almost certain method of escaping injury by the fly. We would urge once more the advisability of a thorough preparation of the soil, since the latter promotes a vigorous growth and assists the plants, through free tillering, to outgrow any possible early injury.

Tomato worm. Causing considerable damage to tomatoes. Ordinarily this insect is not abundant enough to necessitate control measures.

E.P. Felt,
September 20, 1917.

TENNESSEE.

We have had no report of even the appearance of Alabama argillacea doing injury in Tennessee this year.

From all that we can observe in regard to cotton boll weevil, the severe weather last winter must have killed many of the late migrations, for this season we have found the weevil in only two counties, Madison and Henderson. This morning I received several adult weevils from Jackson, Madison county, and the writer said that apparent injury was noticed in the bolls.

G. M. Bentley,
September 25, 1917.

TEXAS.

Considerable damage in some blackberry fields from the blackberry cane borer has been noticed at Fort Worth, Smithfield, Bedford, Arlington, Tarrant, Aubrey, Denton, Pilot Point and Gainesville.

About 50 per cent of poplar trees infested by the poplar borer at Sherman, Texas.

In some cotton fields as high as 15 to 20 acres have been eaten up by the careless weed webworm in Guadalupe and Hays counties.

Chrysomphalus tenebricosus is killing some maple and box elder shade trees in Bonham. About 90 per cent of the maple and box elders in Bonham are infested with scale.

Meredith H. James,
September 4, 1917.

WASHINGTON.

I have just returned from an extended insect scouting trip which began about the middle of June. During the summer we have covered nearly four thousand miles, practically all in Washington, and over thirty-three hundred have been done by the little automobile. The purpose of this trip you may glean from the following headings:

Depredations and spread of the strawberry weevil. In the State of Washington, Otiophynchus ovatus extends from north to south along a strip east of Puget Sound, invading the islands and extending westward to Montesano. Most of the strawberry fields of this region are infested. In the region immediately east of Seattle where the insect first entered the state fifteen years ago, the berry industry has been taken over almost entirely by Japanese who shift their fields as the weevils kill their plants. There are three species of the genus, ovatus, sulcatus, and rugifrons, which are concerned with the destruction of the strawberry plants. Of these the first is economically by far the most important, although along the Columbia River rugifrons does considerable damage. East of the Cascade Mountains ovatus has already invaded the principal berry regions, including those around Kennewick, Richland, Spokane, Walla Walla, and recently North Yakima.

Survey of cranberry problems. Commercial cranberry growing is restricted to the extreme southwestern part of Washington, and there are also some extended fields south of the mouth of the Columbia River. In this state, although in its infancy, the industry has already totalled over a million dollars ~~invented~~. The principal trouble is occasioned by the fire worm, which, in its several generations, drops the leaves, buds, blossoms and fruits, destroying not only the year's crop but by attacking the terminal buds, prevents the next year's berries from forming. The growers certainly need advice and assistance as much as any group of people can. They are enthusiastic but helpless before this insect. They have equipped their bogs with piping, and have installed engine sprayers so as to be in a position to carry on excellent spraying, but what is best and safest to use, and just when the spraying should be applied are unsolved problems for which the growers are crying for professional advice, especially since this year their avertable losses have

amounted to hundreds of thousands of dollars.

Status of the wheat midge. A notice from Mr. Trehern of Agassiz, B.C. was given out by Mr. Creel in the June emergency bulletin that the wheat midge was invading Washington. This insect was sent to the Washington station six or seven years ago from Whatcom County. Its spread has been decidedly limited for spring wheat, or any wheat for that matter, is almost not at all grown. The species has been found at Lynden and Sumas, but this year I failed to locate any infestation.

Aside from interviews with practically all the county agents in Western Washington my itinerary afforded me visits to your strawberry weevil man, F.R. Cole at Hood River, Oregon, your cereal insect laboratory at Forest Grove, Oregon, where Cecil Creel and his splendid force of assistants are doing some good entomological investigations, the Oregon Agricultural College at Corvallis, and its fruit substation at Hood River.

Perhaps the most valuable part of the summer's expedition was the information received and given during the personal visits with hundreds of farmers. The car enabled me to get off the beaten tracks and to run down scores of reported insect problems. With the camp outfit carried along we were made independent of hotels and railroads and thus were enabled to reach into many a region I never before have had the opportunity of visiting. As a result of the information thus gained we are planning some informational bulletins, most needed on garden insects to assist in next year's warfare on insects. Although most of my visits were unheralded the county agents in several instances advertised my coming and I held open-air demonstrations with groups of farmers on insect control.

A. L. Melander.

September 18, 1917.

